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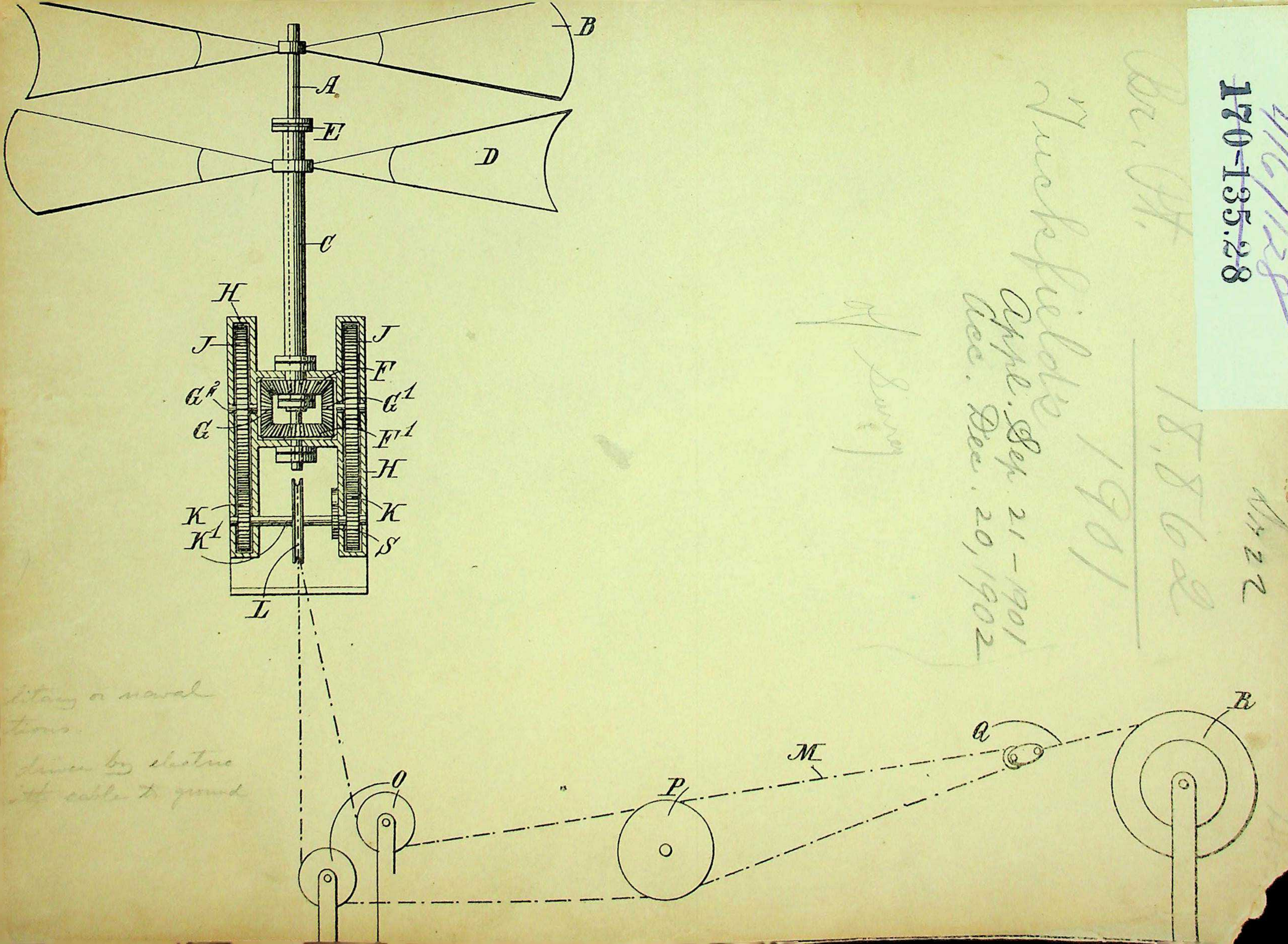
Br. Pt. 18,862 / 1901

Tuckfield's
Appl. Sep. 21-1901
Acc. Dec. 20, 1902

of Surrey



litary or naval
tions.
driven by electric
of cable to ground

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N° 18,862 A.D. 1901

DUPLICATE

Date of Application, 21st Sept., 1901
Complete Specification Left, 20th June, 1902—Accepted, 20th Dec., 1902

PROVISIONAL SPECIFICATION.

Aeronautical Machine.

Charles Tuckfield 12 Palace Crescent East Molesey Surrey Engineer do hereby declare the nature of this invention to be as follows:—

This invention is designed chiefly for military and naval observations but may also be used for flight, in this case a motor would take the place of the rope hereinafter mentioned. On the upper end of a rod or tube I fix a horizontal fan—the lower end is then passed down a larger but shorter tube—this tube also has a fan fixed to its upper end, the interior tube projects at each end and is kept in position by collars preferably running in ball bearings, the fans are of equal sizes and right and left hand pitch, the lower ends have bevel wheels keyed on facing each other—A frame surrounds these which carries a bevel wheel gearing into the two so that one fan is driven left and one right hand, on the driving bevel wheel spindle a gear wheel is keyed—with which a much smaller one engages—on the spindle of this one there is a drum with an endless rope round it or a coil of sounding wire—By uncoiling this on the ground a light pull at a high velocity will cause the fans to revolve at a lower velocity—A detent may be attached to the gear so that the fans can only travel one way—a parachute may also be attached. More than two fans may be used—The observer would hang below by a rod or line attached to a loose collar, and would be prevented from rotating with shaft by a vane

Dated this 20th day of September 1901

CHARLES TUCKFIELD

COMPLETE SPECIFICATION.

Aeronautical Machine.

I, Charles Tuckfield, Engineer of 4 Thames View, East Molesey, County of Surrey, late of 12 Palace Crescent in that place do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements in aeronautical machines the object being to provide a device suitable for military and naval observations and actuated either from the ground or independently.

In carrying out this invention, two horizontal fans are employed rotating in opposite directions for the purpose of raising the machine without causing it to rotate.

The accompanying drawing is an elevation of a machine constructed in accordance with this invention.

Referring to the drawing a rod or tube A having a fan B at its upper end is

[*Price 8d.*]

placed within a tube C of greater diameter and also provided with a fan D at its upper end. The inner spindle A projects at both ends of the outer spindle B and is kept in position by collars E preferably running in ball bearings. The fans B, D are preferably of equal size and are of right and left hand pitch. The lower ends of the spindles are attached to two bevelled pinions F, F^1 facing one another and these pinions are arranged to be driven in opposite directions by one or more intermediate driving bevelled pinions G, G^1 which are carried on a frame H or the like.

On the spindle G^2 of the driving pinions G G^1 is keyed a gear wheel J engaging with a second gear wheel K which conveniently is of considerably smaller diameter. The spindle K^1 of the pinion K is provided with a drum or pulley L to be driven by an endless rope M or the like and by driving the rope M at a high speed but with a light pull it is possible to cause the fans to revolve at a lower velocity although the force necessary to drive them is great.

The endless rope M passes over guide pulleys O and a motor pulley P and also over a jockey pulley attached by a cord Q to a spring pulley or the like R to take up the slack of the endless rope and to maintain the proper tension therein.

The driving gear J K L may conveniently be in duplicate or counter-balanced or driven through a pulley L in the centre of the machine.

Instead of employing a rope and pulley, one or more electric motors may be provided on the machine in connection with a dynamo on the ground.

A detent S may be fixed to the gear so that each fan can only rotate in one direction, causing the fans to act as parachutes when the machine falls.

A parachute can be attached to the machine at any point and conveniently is permanently open to ensure the safety of the machine. Should the machine have any tendency to rotate this may be prevented by the use of a vane or by a line controlled from the ground and attached to a rod projecting from the frame; this line being useful also in a wind to prevent the machine from being blown to leeward. If desired more than two fans may be used.

The observer's seat or a platform for a photographic camera, semaphore, flash light or other signal may be suspended on a frame or the like attached to the machine by a loose collar or the like, preferably on ball bearings.

In a machine adapted for free flight, the rope driving gear is dispensed with and one or more light petrol motors are provided.

The paratchute may be in the form of an aeroplane the forward movement being caused by inclining the fans.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In an aeronautical machine the combination of two concentric spindles carrying fans of opposite pitch at one end and bevelled pinions at the other end of the spindles arranged to be driven in opposite directions through speed reducing gear substantially as described.

2. In an aeronautical machine the combination with two concentric spindles carrying fans rotated in opposite directions by bevelled pinions of rope or other driving gear actuated from the ground.

3. In an aeronautical machine the combination with two horizontal fans driven in opposite directions by a continuous rope from the ground of a spring drum or the like to maintain the proper tension in the rope substantially as described.

4. In an aeronautical machine the combination with two horizontal fans driven in opposite directions of a detent to allow each fan to rotate only in one direction for the purpose described.

5. In an aeronautical machine the combination of two concentric spindles carrying fans rotated on the same axis in opposite directions by bevelled pinions of one or more petrol motors to actuate the pinions through speed reducing gear.

6. In an aeronautical machine the combination with two horizontal fans driven in opposite directions on the same axis of a parachute for the purpose described.

7. In an aeronautical machine the combination with two horizontal fans driven in opposite directions on the same axis of a parachute in the form of an aeroplane the forward motion being produced by inclining the fans.

8. The complete aeronautical machine substantially as described or illustrated in the accompanying drawings.

Dated this 20th day of June 1902.

BOULT, WADE & KILBURN,
Agents for the Applicant.

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